DOCUMENT RESUME

ED 132 018 SE 021 454

AUTHOR Dorland, Billie
TITLE Environment. [Project ECOLogy ELE Pak, Dorland Pak].
INSTITUTION Highline Public Schools, Seattle, Wash.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE [76]
NOTE 53p.; For related documents, see SE 021 438-478; Not available in hard copy due to marginal legibility of original document
AVAILABLE FROM Highline Public Schools, Instructional Division, Project ECOLogy ESEA Title III, Bill Guise, Director, 15675 Ambaum Blvd., S.W., Seattle, WA 98166 ($2.50)

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS Art; *Ecology; *Elementary Education; *Elementary School Science; *Environment; Environmental Education; *Instructional Materials; Interdisciplinary Approach; Language Arts; Units of Study (Subject Fields)
IDENTIFIERS Elementary Secondary Education Act Title III; ESEA Title III

ABSTRACT

This is one of a series of units for environmental education developed by the Highline Public Schools. This unit, which focuses on environment and ecology, is designed for upper grade elementary school pupils. Since the five lessons were designed specifically for substitute teachers, each is completely self-contained. Each lesson is developed in four stages: (1) visual aids-colored posters; (2) development of an ecological concept; (3) relating the concept to a form of literature; and (4) culminating the experience with a creative art lesson. (RH)

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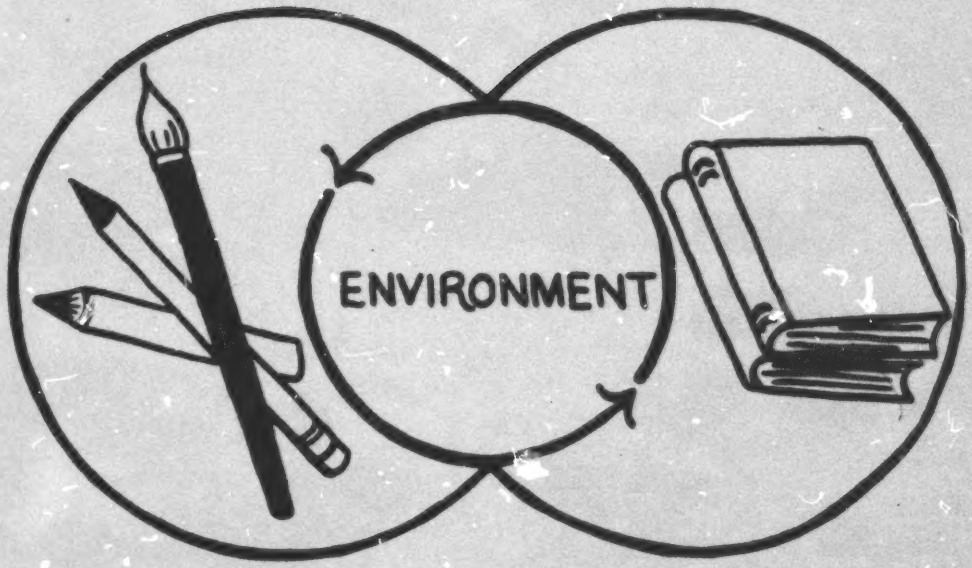


by Billie Dorland

An Environmental Learning Experience for substitutes on 3rd-6th grade levels. One of many "ELE PAKS" available for all areas.

Project ECOLogy, Title III, ESEA
Highline Public Schools
Department of Instruction
P. O. Box 66100
Seattle, WA 98166
Phone: (206) 433-2453

SE 021 454

CONCEPTUAL OVERVIEW OF UNIT

1. All living things ultimately depend on green plants for food.

2. Man needs wilderness and natural areas for recreation as well as for their scientific value.

3. All living things have a place in the environment. Insects contribute to a balance in nature. Some insects are harmful, some are helpful.

4. A sense of beauty is essential to the well-being of man.

5. The sun is the basic source of energy.

INTRODUCTION

I have used both cultural and natural means of teaching the five concepts in my lessons. I think it is most important that students living in a world of constant change learn to interpret the values and relationships between man and his cultural and natural worlds.

By following the ideas, concepts and techniques contained in the following pages with your students, I hope you will see their sense of wonder grow into a feeling of "belonging" and an awareness of the world that they are shaping and that is shaping them.

My main objective in these lessons is to establish an awareness of beauty in environment through the media of literature and art.

NOTES TO THE SUBSTITUTE TEACHER

Since these lessons are designed specifically for substitute teachers, each one is a completely self-contained unit. It will be a tremendous advantage for you if you return to a classroom for more than one day, because you could then follow-up with one of the "suggested extra activities."

Each lesson is developed in four stages:

1. Visual aids - colored posters
2. Development of an ecological concept
3. Relating the concept to a form of literature
4. Culminating the experience with a creative art lesson.

Please fill out one of the ELE forms enclosed in the kit for the regular classroom teacher. Example:

Environmental Learning Experience

To: Mrs. Smith

From: Mrs. Dorland, substitute - 10/15/73

Lesson presented: Dependence of living things on green plants for food.

Time span: 2 hours

Suggested extra activities: cardboard dioramas showing a food chain, demonstrating that all animal life depends on plant life.

Comments: The class thoroughly enjoyed this lesson, and I'm sure they would like to continue with it. Please call if you have questions!

Mrs. Billie Dorland (signed) 247-6451

Just leave a copy of this form with the regular outline of lessons covered during the day. There were undoubtedly be comments about the activity and this very brief form will give the regular teacher a little background.

The length of time each lesson will take depends on a number of factors. The shortest length of time for any lesson would be approximately 1½ hours, and some of the concepts will require the entire afternoon - 2½ hours. The higher the grade level, the more extensive your discussion will be and consequently the longer it will take to adequately develop the concept.

The Spring blew trumpets of color;
Her Green sang in my brain -
I heard a blind man groping
"tap-tap" with his cane;

I pitied him in his blindness;
But can I boast, "I see"?
Perhaps there walks a spirit
Close by, who pities me, --

A spirit who hears me tapping
The five-sensed cane of mind
Amid such unguessed glories -
That I am worse than blind.

BLIND

by Harry Kemp

MASTER MATERIALS LIST OF ITEMS SUPPLIED IN
THE DORLAND SUBSTITUTE KIT

5	posters (available with kit)
100	12 x 18" white drawing paper
100	9 x 12" white drawing paper
40	pencils
4	black tempera paint
1 pad	penmanship paper
5	newspapers (old)
30	water containers
1	red tempera paint
1	yellow tempera paint
36	water color brushes
1 pkg.	colored tissue paper
1 pkg.	colored net
10'	fine gauge wire
2 tubes	glitter
1 cont.	glue
12	pipe cleaners
	sunflower - fresh or artificial (1 picture)
1	rubber cement glue
50	paper cups
1 roll	wax paper
2 rolls	scotch tape

NOTE: An important resource used in developing this Environmental Learning Experience is the Teachers' Curriculum Guide to Conservation Education Grades 4, 5, 6, Matthew J. Brennan, published by J. G. Ferguson Publishing Company, Chicago, Illinois.

LESSON 1

CONCEPT: All living things ultimately depend on green plants for food.

MATERIALS: Poster - 14 x 21" a colorful illustrated poster with the title:

Once upon a time
there was a clean green
and blue world.

It was called
the garden of man,
and man could do
anything he wanted to do
with it.

Short story, The Bojabi Tree, by Edith Rickert
12 x 18" white drawing paper
a black crayon
blue and yellow water color paints
water color brushes
containers for water

PROCEDURE: Discuss the poster on display in the front of room, and ask students what it means to them. Do they feel the world is no longer clean green and blue?

All the world's food and other necessities of life depend on plants.

On the blackboard list the foods the class had for breakfast.

1. *Which of these foods are from plants?*

2. *Which food could you not have if there had been no plants to furnish food for the animals that gave you that food?*

3. *Why does all animal life depend on plant life?*

(If the room is arranged in a grouping of desks or tables, it may be advisable to have each section discuss the blackboard list together before an oral discussion.)

The #3 question above may need further explanation - animals cannot exist where there is no suitable plant life to offer them food and shelter. Carnivorous (meat-eating) animals, although they eat little plant life directly, would soon starve in a region of no plant life because the herbivorous (plant-eating) animals on which they feed would not be there to provide food for them. Animals, however, can leave an area where their plant food has given out and migrate elsewhere if distances are not too great. This of course would not include some of the lower forms of animal life.

Do you think there are food problems facing the world today? What is a famine area? Both of these questions could lead into an interesting discussion. However, I think it would be more applicable on the 5th and 6th grade levels.

Following the discussion of the dependence of living things on green plants for food, go into a lighter more entertaining form of teaching - storytelling. (If you feel more comfortable, you can just read the selection.)

Children love the short story, The Bojabi Tree, by Edith Rickert. You should pace your telling skillfully, changing the tempo as needed and using pauses effectively. Having this entire lesson coming in the last half of the day you will have a good rapport with your listeners so that you can create with them a living experience. If you are able to organize a flannel board, the 3rd and 4th graders would thoroughly enjoy it.

This fiction story takes place in the land of All-the Beasts and there was a GREAT HUNGER. The animals ran around through the woods, eating roots and twigs and any old scraps they could find. One day they came to a big tree full of fruit. But they could not eat it, for they did not know what it was. They later find the tree to be a - Bojabi Tree, and the beasts were never hungry again. They could always eat bojabi.

Hopefully this story will teach a lesson and at the same time entertain. The children should be able to visualize all of the animals, the fruit and the tree during the story.

ACTIVITY: This lesson concludes with a crayon-resist drawing activity. Hopefully the bojabi tree and perhaps some fruit will appear in the 12 x 18" pictures. Leave parts of the space open for a water color wash of blue or yellow. Talk of all the fantastic things that could happen, allow plenty of time for the drawing. The wash goes on in about four minutes at the very end. Show the children that yellow and white show up well with the wash.

Suggested steps for activity:

1. Have students think about all the things they remember happening in the Bojabi story.

2. Each child's desk should be covered with newspaper, and have the following supplies:
   - 12 x 18" white drawing paper
   - a black crayon
   - blue and yellow water color paints (the individual pads work best for such an activity)
   - a water color brush
   - small container of water

3. All the drawing takes place with the black crayon. Encourage a sufficient amount of drawing, or else the picture will appear to be just space with faded blue or yellow emptiness.

4. When all of the crayon drawing is completed, then it is time for the wash. A child may choose to use either blue or yellow or both. I like to encourage the use of both, because where the two color tones overlap they create green - which ties in nicely with the basic concept of the lesson: "All living things ultimately depend on green plants for food."

5. Below is a sketch of a crayon-resist. There is a 12 x 18" example in the kit for your convenience also.

SUGGESTED EXTRA ACTIVITIES:

Children could make cardboard dioramas, showing a food chain, demonstrating that all animal life ultimately depends on plant life. If there is enough interest on the part of the students, you may wish to construct a "food chain" bulletin board. Three dimensional figures would be most attractive.

As a class activity you can make a game with two sides competing. Select a certain food and let each group talk it over and see which can be first to trace the origin of the food (candy bar, chocolate, bread, sugar, peanut butter, etc.).

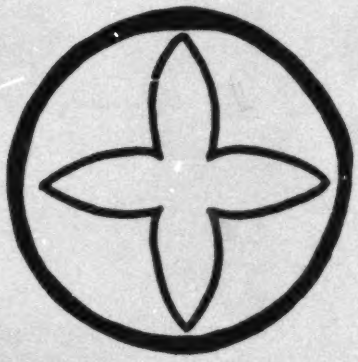
- -

Suggested instructional materials:

Films: Planting Our Garden, color, 11 min.
Encyclopedia Britannica Films, Inc.
1150 Wilmette Avenue
Wilmette, Illinois 60091

How Plants Help Us, color, b/w, 12 min.
McGraw-Hill Text Films
330 W. 42nd Street
New York, New York 10018

The above films have to be ordered, so for substitute use it would have to be a situation that you knew about several weeks in advance.



The Bojabi Tree

THE BOJABI TREE

by Edith Rickert

Robin Rat

In the land of All-the-Beasts there was a GREAT HUNGER. Some of the animals who were so HUNGRY were

Tabby Tiger
Bruno Bear
Katy Crocodile
Robin Rat
Pinky Pig
Giddy Goat
Tommy Tortoise

and many more - more than you could ever count in a year.

They ran around the wood, here and there and everywhere, eating roots and twigs and any old scraps they could find. But still they were HUNGRY.

One day they came to a Big Tree full of fruit. But they could not eat it, for they did not know what it was.

They sat down in a circle round the tree, and said, "What can we do?"

When they had thought a while, they said, "let us send Robin Rat up the river to Leo, our King, and ask him what the fruit is and whether we may eat it."

Robin Rat was young and spry. He scuttled up the tree and brought down one of its fruits to show King Leo.

It was a delicious looking fruit! It looked like an APPLEORANGEPLUMPEARBANANA but it smelled like a BANANAPEARPLUMORANGEAPPLE.

Then Robin Rat scuttled down to the river bank and climbed into his little canoe.

All the day and all the day he paddled and paddled and PADDLED up the river.

And the Great Red Sun dropped behind the trees.

Then he found King Leo on the bank, all ready to receive visitors. He was wearing his crown tipped on the back of his head because he felt happy. He smiled at Robin Rat as pleasant as you please, and asked him to stay to supper.

After supper they curled up and went to sleep. There was nothing else to do, you see. For this is the way it looked in the GREAT WOOD.

In the morning King Leo said politely, "What can I do for you, my small friend?"

Then Robin Rat answered, "Please tell us, King Leo, what is the name of this tree and whether we may eat the fruit of it. We are all SO HUNGRY!"

King Leo looked at the fruit that was like an APPLEORANGEPEARPLUMBANANA and he sniffed at the fruit that was like a BANANAPLUMPEARORANGEAPPLE.

Then he said, "It is a good fruit. You may eat it. The name of the tree is BOJABI."

Then Robin Rat hung his cap over his right ear and climbed into his little canoe.

All the day and all the day he paddled down the great river.

And all the way he was thinking how much he could eat of that DELICIOUS fruit.

And at night he came home.

All the Beasts were waiting for him on the shore. He came up, whisking his paddle this way and that way through the water, just to show how well he could do it.

"What is it, Robin Rat?" said All the Beasts. "Tell us the name!" they roared and howled and grunted and whined and shrieked and squealed, each in his own PARTICULAR voice.

"Oh!" said Robin Rat. "I knew it a while ago, but now I have clean forgotten it."

Then All the Beasts stepped into the water and upset Robin Rat's little canoe.

They SPLASHED and they SPLUTTERED and they SP-L-ANKED Robin Rat. Squeaksqueaksqueaksqueaksqueak!

Nobody heard a word more from him that day.

Pinky Pig

But now All the Beasts were HUNGRIER STILL.

They sat in a circle round the tree and thought a while.

Then they said, "Let us send Pinky Pig to King Leo to ask the name of the tree. But Pinky Pig, DO NOT FORGET IT!"

Pinky Pig trotted away home-trip trap, trip trap, trip trap.

He put on his best blue coat and buttoned it up, though it squeezed him a little.

Then he trotted-trip trap, trip trap, trip trap-down to his little rowboat and took his oars to row up the big river.

And the Great Red Sun dropped behind the trees.

Then he found King Leo on the bank, all ready to receive visitors. His crown was a little crooked because he had put it on in a hurry when he saw Pinky Pig coming.

He smiled politely but he did not invite Pinky Pig to stay to supper.

"What can I do for you, my plump friend?" he asked.

Pinky Pig showed him the fruit that looked like an APPLEORANGEPEARPLUMBANANA and smelled like a BANANAPLUMPEARORANGEAPPLE, and said, "Please, King Leo, we must know the name of this tree or we cannot eat the fruit. Please be so kind as to tell us."

Then King Leo said, "I have told Robin Rat. I will tell you. The name of the tree is BOJABI! Do not forget it."

Pinky Pig trotted back to his rowboat-trip trap, trip trap, trip trap.

All the night and all the night he rowed-he rowed-and he ro-o-wed until the oars-dropped-from-his-hands-and the big river took the boat down itself.

Pinky Pig curled up under the seat. And this is the sound that came from the boat: H-r-r-r-umph h-h-r-r-r-umph h-h-h-r-r-r-r-UM-MPH!

In the morning Pinky Pig sat up and rubbed his eyes. He was at home. All the Beasts stood on the river bank looking at him. "What is it, Pinky Pig? Tell us the name!" they whistled and snarled and squealed and shrieked and whined and grunted and howled and roared, each in his own PARTICULAR voice.

"I know it," said Pinky Pig. Then he yawned.

"I knew it last night," he said, "but-ah-ah-I-must-have-been-asleep, and ah-for-got-ten it." That is the way he talked when he was yawning.

Then All the Beasts jumped into the water and smashed Pinky Pig's boat and his oars.

They PLUNGED about and PUNCHED poor Pinky Pig and POUNDED him until he went plop-plop-into the water.

SQue-e-e-e-e-e-E-E-E-E-E-E-E-E-AL!

He ran home with the water running off him and making little puddles here and there.

Nobody heard a word more from him that day.

Giddy Goat

But now All the Beasts were HUNGRIER and HUNGRIER. They could have eaten nails if there had been any nails in the Great Wood.

They sat in a circle round the tree and thought a while.

Then they said, "Giddy Goat is older than Pinky Pig, and wiser than Robin Rat. Let us send him to King Leo to ask the name of the tree so that we may eat the fruit of it before we starve. But Giddy Boat, DO NOT FORGET IT!"

"A-rashum!" said Giddy Goat. He was afraid of catching cold. Away he ran-kerlipp, ker-lipp-to his house to get a big wooly muffler to wear on the river. He wrapped it three times round his neck and tucked it neatly under his beard.

Then he ran-ker-lipp, ker-lipp-down to his little sailboat on the river.

All the day and all the day he sailed and he sailed and he SAILED up the big river.

And the Great Red Sun dropped behind the trees.

Then he found King Leo on the bank, not ready to receive visitors. His crown was on straight and he looked very CROSS.

"Whatdoyouwant?" he snapped-just like that.

"A-rashum!" said Giddy Goat. "I beg your Majesty's pardon. I have a cold coming on."

He showed King Leo the fruit that looked like an APPLEORANGEPEARPLUMBANANA and smelled like a BANANAPLUMPEARORANGEAPPLE, and said, "If you would be so very kind, King Leo, to tell us the name of this tree, so that we may know whether we may eat the fruit of it."

Then King Leo said, "I have told Robin Rat. I have told Pinky Pig. I will tell you. But I will not tell ANYBODY ELSE. The name is BOJABI. DO NOT FORGET IT!"

"A-rash-oo!" said Giddy Goat and he skipped away-ker-lipp, ker-lipp-to his sailboat.

All the night and all the night he sailed and he sailed and he SAILED.

All the way he was remembering the name, and he remembered it very well.

He sailed so fast that he got home in the early, early morning. And all the way when he wasn't remembering the name, he was sneezing: "A-tchoo! A-rashum! A-tchoo!"

All the Beasts were waiting for him-rows and rows of them. Those in the back rows looked over the shoulders of those in the front rows, or climbed on their backs.

They pushed and jostled one another until they had upset Giddy Goat's sailboat. Ker-splash!-he went into the river.

Such a sight as he was when they pulled him out. His long hair was full of water. His beard was full of water. His eyes were full of water. His beautiful new muffler was full of water.

When the animals crowded round him to ask the name of the tree, he shook himself so that the water flew in their faces, and ran away home-ker-lipp, ker-lipp-with a most dreadful A-TCHOO!

His wife made him go to bed. And not one word could anyone get from him all that day but A-tchoo! A-rashum! A-tchoo!

Tommy Tortoise

By this time All the Beasts were so HUNGRY that they sat round the tree and cried. You see there was no one else who had a boat.

"What shall we do?" they wailed and howled and buzzed and grunted and groaned and sobbed and lamented, each in his own most PARTICULAR VOICE.

Then Tommy Tortoise, who had been lying asleep in the sun, opened one eye, and said, "What is all this fuss about? Haven't you found out the name of this tree YET?"

They said they had not and cried harder than ever.

"Oh well," said he, "if that's all, I'll go and get it for you."

"YOU!" snarled Tabby Tiger.

"You! You!" grunted Bruno Bear.

"You!" snapped Katy Crocodile, biting her word off short.

"You-u-u!" trumpeted Elizabeth Elephant.

"You! You! You!" chattered Mimi Monkey.

You never heard such a noise-not even at the circus-as there was when they all said this, each in his own PARTICULAR voice.

"Yes, me-I mean I," said Tommy Tortoise in his little, thin voice.

Then he crawled slowly home, trailing one foot after the other, as some boys do on their way to school.

He found his mother knitting stockings and rocking the baby.

"Hssh!" said Mrs. Tortoise. "He's just dropping off."

"Mother," said Tommy Tortoise. "How can I remember the name of that tree if I go up the river to get it?"

"Tommy," said Mrs. Tortoise, "do you remember how you used to go to school with all the other little tortoises and learn things?"

"Yes," said Tommy. "Nine times one makes nine, Nine times two makes eighteen, Nine times three makes twenty-seven-" He said the Nines table because anybody can say the Tens, and he wasn't sure about the Elevens.

"Hsh!" said Mrs. Tortoise. "That will do. You will wake the baby."

"But I will tell you how to remember." She whispered in his ear.

Then she said, "Now, Tommy, whatever happens to you, mind your manners. Remember to bow to King Leo and to speak to him so politely that he will know you have been well brought up."

"Yes, Mother," said Tommy Tortoise.

Then he put on his cap with the red tassel, and he went down to the river. He had no boat; so he had to swim.

All the day and all the day he swam and he swam and he SWAM. When he was tired swimming, he would turn over on his shell and float with all his legs kicking in the water, just as the baby kicks in his bath.

And the Great Red Sun dropped behind the trees.

When Tommy Tortoise reached King Leo's home, King Leo was NOT curled up comfortably wearing his crown and ready to receive visitors. He was standing on the river bank waving his tail. His big head was waggling this way and that way, and he was not smiling AT ALL.

Before Tommy could speak a word, or even make his best bow, King Leo said: "R-R-R-R-R-R-R-R-R-R-R-R-R-R-R-R-R-R-R! S-s-cat! S-scamper! S-scat! S-skedaddle! I told Robin Rat. I told Pinky Pig. I told Giddy Goat. I WILL NOT TELL YOU that the name of the tree is bojabi. R-R-R-R-R-R-R-R-R-R-R-R-R-R!"

"Bojabi," whispers Tommy Tortoise to himself, and jumps-ker-lump-into the river again.

All the night and all the night he swam and he swam and he SWAM. But it was easy work to let the big river carry him on its back.

All the night and all the night he made up a little song and sang it, like this:

"O Robin Rat, what shall we eat?
Bojabi-bojabi-bojabi.
O Pinky Pig, so fat and neat,
Bojabi-bojabi-bojabi.
O Giddy Goat, so fast and fleet,
Bojabi-bojabi-bojabi
O Humpy Hippo, hard to beat,
Bojabi-bojabi-bojabi
O Bruno Bear, with clumsy feet,
Bojabi-bojabi-bojabi.
O Katy Crocodile, here's a treat,
Bojabi-bojabi-bojabi.
O Tommy Tortoise, of Puddle Street,
Bojabi-bojabi-bojabi.
O All-the-Beasts, come quick and eat
Bojabi-bojabi-bojabi.

And THAT was what his mother had told him to do.

All the Beasts were lying on the bank of the river. Far away they heard the little, thin voice of Tommy Tortoise singing his song. They pricked up their ears, looking this way and that way as they listened.

And presently Tommy Tortoise came crawling up through the mud.

"What is it?" they cried, each in his own PARTICULAR voice. You would have thought that all the circuses in the world were there.

"Bojabi," said Tommy Tortoise, and crawled away home without another word.

That night All the Beasts had bojabi for their supper.

But Tommy Tortoise had cream with his.

After that All the Beasts in that wood were never hungry. They could always eat bojabi.

They made Tommy Tortoise their king. "For," they said, "if he could remember the name of the bojabi tree, he can do anything."

As far as I know he is king of All the Beasts in the Great Wood to-day.

--Adapted from an African folk tale

ENVIRONMENTAL LEARNING EXPERIENCE

To: _____

From: _____

Lesson presented: _____

_____

_____

Time span: _____

Suggested extra activities: _____

_____

_____

Comments: _____

_____

_____
(signed)

- - - -

LESSON 2

CONCEPT: Man needs wilderness and natural area for recreation as well as for their scientific value.

NOTE: This lesson is much more successful if done on a sunny day.

MATERIALS:
Poster - 14 x 21"
Title: I am blue, you are yellow,
Together we make green,
And green is my favorite color!
Short story, Augustus Goes South, by Le Grand
9 x 12" white drawing paper - 3 per student
pencils
something firm to draw on (a large book will work)
black tempera paint
paint brushes

PROCEDURE: The colorful poster in vivid green tones should stimulate the discussion and bring questions to the floor by the students.

From the predominantly green poster develop the concept of wilderness.

Green ⟷ Wilderness

What is wilderness? Is it green?

Wilderness is: an area untrampeled, without permanent improvements or human habitation; a place of solitude and no commercial activity; an area of at least 5,000 acres, according to the Wilderness Act of 1964. (List the above 3 items on the blackboard).

1. *Why do you think a national law was made to preserve wilderness areas?*

2. *Why does man need wilderness and natural areas?*

3. *Do such areas have any scientific value?* (Compare environments.)

4. *How has loss of wilderness affected wildlife?* (Example: puma, grizzly bear, whooping crane.) If time permits, have available reference books with these animals in them, and let a few share their findings with the remaining students. Most of them have probably never heard of a puma.

5. *What wilderness areas are we trying to preserve in Washington?*

6. *Do you know what a watershed is?* (May want to discuss Seattle's watershed near Hobart, road cut off from Lester and Stampede Pass.)

Wilderness is something exciting and adventurous to a child of 9, 10, or 11 years of age. LeGrand's short story, Augustus Goes South, tells a story of two boys, Augustus and Albert, spending the night alone in the woods.

ACTIVITY: Many times during the short story shadows were mentioned and described in detail. The art lesson to be used as a culminating activity is called, "shadow pictures" - for hot, sunny, still days.

However, if the weather doesn't cooperate, you can still do the lesson by following the suggestions below:

1. Have the children go outside and gather a few examples of leaves, vines, shrubs, flowers, rocks, etc. from the playground.

2. Each can then display his findings on the table in front of him. They will have to work with a partner. By holding the objects for each other a few inches away from the paper a shadow will be cast, which can be sketched with a pencil.

Each child will need 2 or 3 sheets of 9 x 12" paper, a pencil, and something firm to draw on - a large book or a drawing board.

1. Start this lesson inside by explaining the word silhouette. Stand in front of a bright window and have the children squint at you. It is important that they concentrate on shape, rather than detail or texture.

2. Outdoors, cast a shadow on paper with your hand and have a child draw around it. Be sure not to lay hand directly on paper.

3. Then send the children around to find shadow-casting natural objects on the playground. (Could be a branch with leaves, evergreen bough, vine, shrub, plant, flowers, rocks, or parts of playground equipment.)

4. If they work in pairs, one child can hold the object while the other outlines the silhouette. If time permits, each child should produce 3 or 4 outlines.

5. Return to classroom which has each child's desk lined with newspaper, a paint brush, black tempera, and a water container. Then fill in the outline with black tempera. Try also on one drawing to fill in the negative space - by this I mean the space around the silhouette.

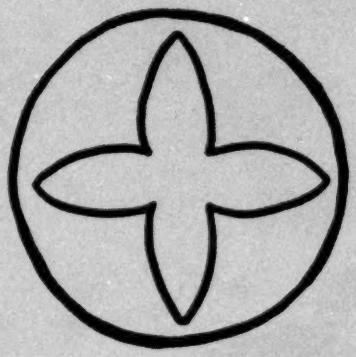
   This is an "everyone succeeds" lesson, and very attractive when displayed.

A 12 x 18" example can be found in the Kit.

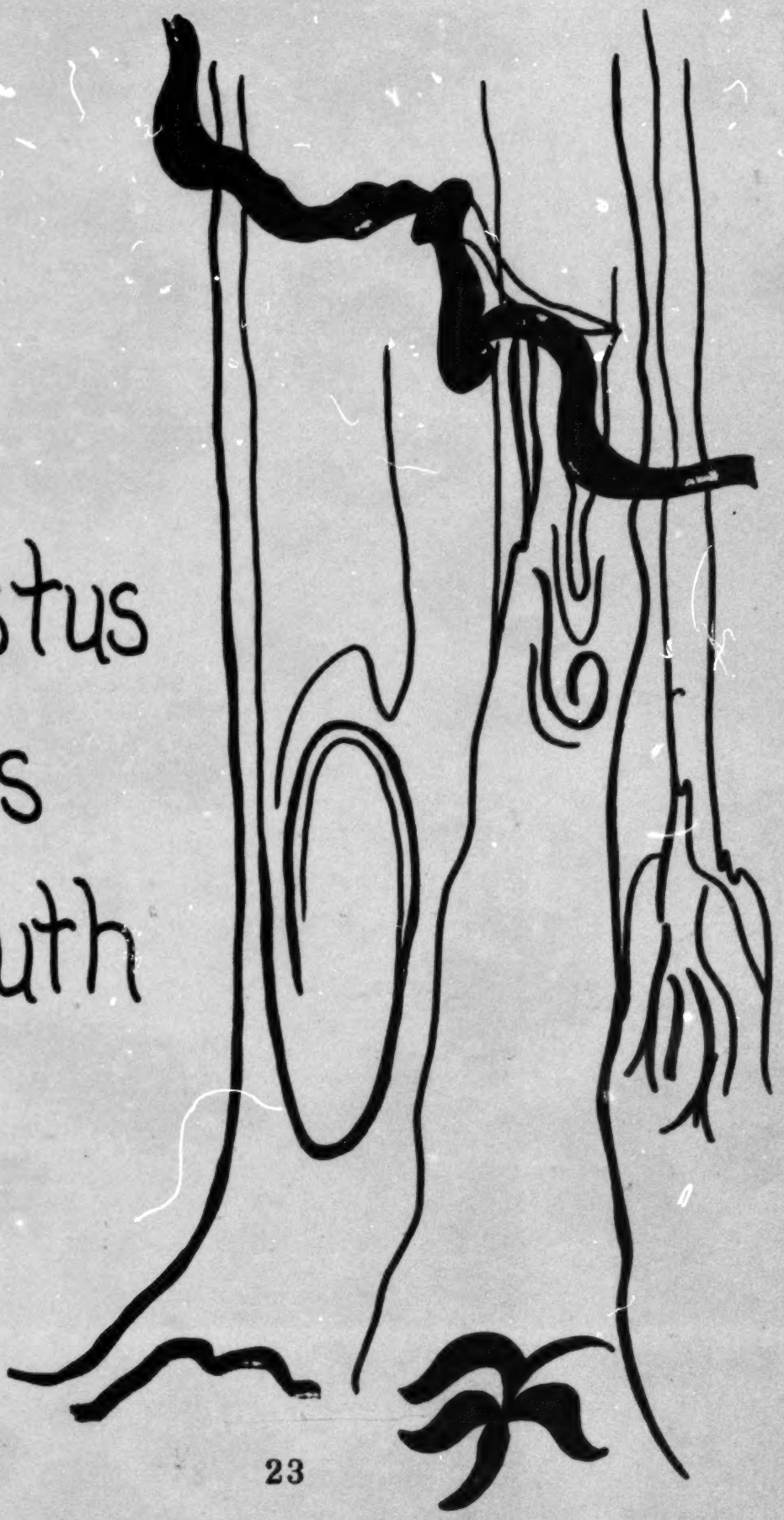
Idea for displaying project: Cut out at least one shadow picture of each student and display on a green background. Pin up at random some of the light weight natural objects used by students.

SUGGESTED EXTRA ACTIVITIES:

The story, Augustus Goes South, could lend itself at a creative writing lesson. Each student could write his own ending to the story.



Augustus Goes South



AUGUSTUS GOES SOUTH

by Le Grand

The flickering orange light of the fire threw fantastic shadows which raced across the tree trunks. The popping and snapping of the wood was the only sound that broke the silence.

Augustus and Albert sat beside the fire, feeling pleasantly excited and adventurous at the prospect of spending the night alone in the woods.

"Gee, this is swell," said Augustus, leaning back against a tree trunk and stretching as if the sense of freedom that he felt was too big and he had to stretch to take it all in.

"Yes--swell," agreed Albert, absently slapping at a spot on his ankle that suddenly itched.

"Umff," sputtered Augustus, slapping at his ankles too. "Mosquitoes!"

There was a shining drone near his face and he slapped at it. Across from him he could see Albert slapping too.

"Boy," said Augustus. "These swamp mosquitoes are big!"

Albert threw some green leaves on the fire to make a heavy smoke. That helped some but still the sound of slapping went on steadily.

"They'll eat us alive," muttered Augustus. "We'd better make a hut."

"Take too long," said Albert. "And besides I've got a better idea. See the hollow trunk in that big old fallen tree?"

Augustus looked at the hollow tree trunk and grinned.

"Sure," he said. "That's a hut all made for us."

"Yes," said Albert. "We can cover the front with palmettos. That'll keep the mosquitoes out. Come on, let's get some palmettos."

He took a stick from the fire for a torch and they left the circle of fire-light and pushed through the bushes to a palmetto thicket.

"Look out for snakes," said Albert. "This swamp is full of water moccasins. And they're bad!"

He broke off a long pole and beat the bushes ahead to scare away any snakes that might be lurking in the darkness.

Back they floundered with a big load of palmetto fronds and poles. They built up the space in front of the tree trunk, weaving the long fan-shaped clusters of palmetto into a solid wall except for a small opening directly in front of the fire. More green branches on the fire sent up thick clouds of smoke which curled back into the opening and drove most of the mosquitoes out.

Sometimes when the smoke swirled in too thickly, it almost drive Albert and Augustus out too. Except for that, it was strangely cozy in the tree trunk. Although there was room for both of them, the smallness of the space made them feel snug and safe and pleasant.

Augustus and Albert lay on their stomachs, facing the opening and watched the flickering firelight shift across the palmetto screen.

As he thought of the ruined buildings in the darkness just beyond, Augustus' imagination pictured them as they had been long ago when he felt sure there had been a pirate village here.

"Look there," he said to Albert, and pointed out at the darkness. "Probably right out there is where the pirates were. Maybe so close we could touch them if they were there now!"

Albert looked uneasily beyond the circle of light from the fire. The shadows were dark and mysterious under the trees and when the flames flickered the shadows seemed to come alive, moving stealthily back and forth and sometimes closing in around the tree-trunk hut.

"Maybe--maybe they weren't quite that close," mumbled Albert, as he drew a little farther back from the opening.

"Oh yes, they were!" insisted Augustus. "Right out there--why, we'd be right in the middle of them!"

Suddenly Augustus remembered a picture he had seen of a cruel scowling pirate face. Until that moment he had been thinking of the bright-colored clothes and gold sparkling in the firelight.

"Well," he went on, "maybe they were a little farther off." As he thought of that fiercely scowling face, he shifted a little farther back in the tree trunk. "Maybe they were way down at the other end of the island!" he said suddenly.

"Yes," agreed Albert warmly. "Why, maybe they weren't even on this island at all. Probably it was some other island!"

The shadows towered high as the fire burned lower and lower. There was no wood left to build it up and neither Augustus nor Albert made a move to get any more.

"I guess we'd better go to sleep when the fire burns out," said Albert nervously.

"Yeh," said Augustus, but he didn't sound at all sleepy.

The shadows moved in closer and closer. A hollow hooting sound began off in the woods. The sound was faint and far off at first but it grew steadily louder. Other hollow voices joined in and the mingled sounds rose to a wild fierce clamor that beat through the darkness in gusty waves.

"It's--it's just owls," said Albert, but he could feel the back of his neck prickling.

"Yeh, just owls," said Augustus, but that didn't make the wild screaming any less scary.

"Anyway, I don't believe in ghosts," said Albert suddenly, although no one had said anything about ghosts.

"No," agreed Augustus much louder than was necessary. "Who'd believe all those old stories about pirate ghosts haunting the places where their treasure is buried? Huh! I guess I wouldn't."

The fire was very low now, just a dim red glow too weak to keep back the shadows that hovered right at the open end of the log.

"They say that ghosts are all white," said Albert suddenly.

"Ye--yeh," said Augustus, staring hard into the blackness.

"Huh," said Albert, "who'd believe that?"

"Huh, I betcha I wouldn't," said Augustus firmly.

"It's getting kind of dark," said Albert.

"Yeh," said Augustus. "Course that doesn't make any difference."

After a while Augustus said, "Maybe it might get cold before morning. I guess we'd better keep the fire going after all."

The wild racket of the owls had died away. In the silence the small rustling night noises of the woods seemed very loud.

Albert had been thinking for some time that almost anything would be better than just lying there in the dark.

"All right," he said, "let's get some wood."

They squeezed out through the narrow opening together. Scuttling past the tiny red spark that was all that was left of the fire, they headed for the woods.

Augustus had a hatchet and Albert had the shovel which he held out in front of him for some reason that was not quite clear, since they were going for wood.

The moon was not up but the faint light of the stars gleamed coldly on the water. Once they stopped and looked around as a new strange noise made their hair rise.

"Oh, that's just a branch rubbing against another one," said Albert.

"Yeh," said Augustus. "Anyway ghosts wouldn't make much noise--even if there were ghosts."

"N--no," said Albert. "They're just kind of white and still-like."

"Yeh," said Augustus. "Just white an--" He stopped suddenly and grabbed Albert's arm. "L--l--look!" he quavered.

Something white gleamed against the darkness beyond!

For what seemed like an hour Augustus held tightly to Albert and Albert held onto Augustus. They didn't move. Neither did the white thing.

"Who--who's there?" stammered Augustus.

There was no answer.

The white thing seemed to grow brighter, shining through the darkness like a steadily increasing white light. Suddenly Augustus was aware that the moon had risen and was gradually lighting the trees and rocks all around. The white thing still hadn't moved and Augustus felt a little bolder.

"Who's there?" he called again.

And again there was no answer.

Suddenly Augustus' fright began to turn to anger. He began to feel angry at himself for being so scared.

"I'll show you," he shouted. He raised the hatchet over his head and threw it at the glowing white shape ahead.

The hatchet struck with a sharp clattering noise. It didn't sound at all like a ghost; it sounded more like a pile of rocks.

August crept cautiously ahead. He reached the edge of the woods. The white shape was just ahead of him. Beside him he could feel Albert. Albert still had the shovel; he reached out and poked at the white thing. Small pieces of white fell from the rest and rolled away.

"Aw," said Augustus, "it's only some ol' white rocks with the moon shining on them."

Albert reached down and picked something up. He held it up to the light of the moon and gasped.

"Augustus," he said excitedly, "it's a shell--that thing is a big shell pile--the kind Grandpere says the treasures are buried in!"

"Yay," shouted Augustus. "I knew. I knew it--I knew it all the time!"

He grabbed the shovel and started to dig furiously. The shells were hard to dig away and Augustus made little progress in the dark.

He tripped over the handle of the shovel and sat down hard. Albert said, "Let's wait until morning. We couldn't see what we found even if we found it. And besides we'd probably miss it in the dark, anyway."

Augustus was impatient to go on, but after trying to dig again, he realized it was hopeless.

"All right," he said. "Let's make a big fire and sit up the rest of the night. We'll watch so no one else can come along and get the treasure."

They dragged a huge load of wood back to the hollow tree and built the fire up into a blaze so big it lighted up the whole end of the island.

Too excited now to be scared, Augustus and Albert lay in the hollow tree and waited impatiently for morning.

"Now remember--no sleeping," said Augustus. "It'd be a fine thing, wouldn't it, if somebody came along and dug up our treasure after we almost found it--and us asleep!"

Although Albert agreed not to sleep, he tried reasonably to point out that people didn't usually roam around in the swamps at night.

"Who'd be likely to come digging around here on a dark night like this?" he asked.

"Well, finding treasure is mighty funny thing," said Augustus. "You can't ever tell what might happen."

It was snug and comfortable in the tree trunk. The sides reflected the cheerful orange glow of the firelight.

Through the opening in the palmetto screen the pleasantly pungent odor of wood smoke mingled with the fresh damp earthy smell of the woods at night.

Morning seemed a long time coming.

"Remember--no sleeping," said Augustus.

Albert didn't answer. Augustus looked at him. Albert was asleep.

"Oh well," thought Augustus, "I'll let him sleep a while."

The sound of the frogs was soothing and monotonous, like the drip of rain on a roof, Augustus thought. He remembered how pleasant it was to be half-asleep in the houseboat while the rain dripped steadily.

The firelight wavered as the fire burned lower. The flames died, leaving a bed of glowing coals. Gradually the glow of the coals dimmed. Pale moonlight flooded the open space in front of the tree trunk, replacing the warm fireglow. Occasionally there was a thin faint splashing as a fish jumped out of water. The last of the glowing coals winked out. Augustus did not build up the fire. Augustus was asleep.

The deep calm of the woods lay undisturbed over the moon-silvered swamp.

The sky was red and gold with the glow of a bright sunrise when the squall of a blue jay woke Albert. He rubbed his eyes, looked around, then jumped up.

"Hey, wake up," he shouted, and while Augustus yawned and blinked at him, Albert picked up the shovel and ran toward the pile of shells.

Augustus followed him and they took turns digging. It was hard work. The shells overlapped so that the shovel didn't go very far into the pile no matter how hard they pushed. There was a place near the center of the pile where the shells were sunk in a hollow and Augustus said that showed where the treasure was buried. Using the shovel like a scoop, they dragged shells down the side of the pile, gradually getting farther into the hollow place.

After they had dug for what seemed like a long time without finding anything, Albert stopped to rest and stare gloomily at the shell pile.

"You know," he said, "not all these shell piles have treasure in them."

Even Augustus looked discouraged, but he gritted his teeth and said, "No, I guess not, but if there's any treasure in this one I'll find it if I have to dig clear to China. Gimme that shovel! We'll see."

They went on digging, taking turns with the shovel as the sun rose higher and drops of sweat glistened on their foreheads.

"Uh!" said Albert suddenly as his shovel hit something that was not shells.

He dug again and this time Augustus heard the muffled scraping sound that was altogether different from the sharp clatter of the shells.

"What is it?" whispered Augustus.

"Don't know," whispered Albert. "It doesn't feel like a wooden chest though."

Augustus ran to help and pulled at the shells with his hands while Albert dug with the shovel.

"It feels like cloth," said Albert wonderingly as he scraped the shovel around in the hole.

"Huh," said Augustus, "it can't be. Who ever heard of pirates burying treasure in cloth?"

He stretched his arm down into the hole and felt around with his hand.

"It is cloth," he muttered as his fingers scraped over something soft but scratchy.

They dug harder than ever, and the sound of the shells rolling down the side of the pile was like the clink of gold pieces.

"Guess we can get it now," said Albert, reaching down in the hole. Augustus got into the hole and pushed.

"All together now when I count three," he said. He braced himself and counted, "One, Two. Three--uh!"

"It's coming," gasped Albert. "Keep pushing."

"Here it comes," grunted Augustus, as the shells fell away and up came a big canvas bag.

With their eyes wide with excitement Albert and Augustus stood for a moment looking down at the bag.

"Why," said Albert. "Why, look--it's a mailbag."

Augustus just gaped at the bag, reading the words U. S. MAIL that were printed across it.

"But it's a new mailbag," said Augustus. "How could the pirates have buried it?"

Albert stood looking at the mailbag and scratching his ear as he always did when he was puzzled.

"The pirates didn't do it," he said finally. "Anyway, not those old pirates." He looked all around, staring anxiously into the dim shadows in the woods. "Augustus," he whispered, "this must be one of Mr. Thibodaus's mailbags and I bet he's been robbed!"

Augustus had been fumbling at the mailbag and now he succeeded in opening it. There were no letters in it, but down in the bottom Augustus felt some square

packages wrapped in paper. He dumped them out and tore away the paper coverings.

"Look!" he gasped. "Money!"

Albert's mouth popped open and he whistled shrilly through his teeth. The package was full of paper money.

"We'd better get out of here quick," whispered Augustus.

ENVIRONMENTAL LEARNING EXPERIENCE

To: _____

From: _____

Lesson presented: _____

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Time span: _____

Suggested extra activities: _____

_____

_____

Comments: _____

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(signed)

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LESSON 3

CONCEPT: All living things, including insects, have a place in the environment and contribute to the balance in nature.

MATERIALS:

Poster 14 x 21"
Title: I get by
with a little
help from
my friends.

Four poems:
1. The Caterpillar by Rossetti - in Pak
2. Little Busy Bee by Watts - in Pak
3. Jungles of Grass, by Aileen Fisher - in Pak
4. Cocoon, by David McCord - in Pak
5. The Centipede, Anonymous - in Pak

colored tissue paper (or net)
wire
glitter
glue
pipe cleaners
tempera paint
water color brushes
8½ x 11" paper
pencils

PROCEDURE: Read simply and unpretentiously the four poems to the class. Practice reading aloud any of the four that are unfamiliar to you before reading aloud.

Hopefully the children will want to talk about each of the selections. Some suggested discussion-starters:

What two animals might eat the caterpillar?
What was the caterpillar going to be eating?
What do we mean by "busy as a bee"?
What three stages does a butterfly go through in its life?
Just what is an insect? Is a spider an insect? (no - an insect has only six legs)
What about a centipede? (no)
Do you suppose centipedes do have the same problem as the one in the poem?
Imagine yourself as extremely small, as small as a bug - what would your environment look like?

After discussing some of the above questions, ask?

Are insects harmful or helpful? To whom? (The students will probably answer that some are harmful, some helpful. Lead them, through questioning, to the realization that each insect is both, depending on who decides. For example, silkworms are harmful to mulberry trees, but helpful in fabric manufacturing. And aphids are harmful to roses, but helpful for ladybugs, who eat them.)

What would happen if we got rid of all the insects that man considers harmful? Let me tell you a true story about mosquitos:

In Borneo recently, great quantities of DDT were sprayed in a mosquito control campaign. This was effective and killed many mosquitos. However, it also killed a great number of predatory wasps. The wasps had been a control on the numbers of certain caterpillars. The caterpillars increased (they were not harmed by the DDT). Soon the thatched roofs of the natives' houses began to fall in because they were being eaten by the caterpillars.

The ecological side effects went on beyond this, because DDT was also sprayed indoors to control houseflies. Normally the houseflies were eaten by geckos (lizards) and these lizards began to die when they ate the poisoned flies. Then the geckos were eaten by house cats. The cats received all of the DDT concentrated from the flies and geckos. They died in such numbers that rats (which the cats used to eat) began to invade the houses and eat the people's food. Rats in Borneo sometimes carry a deadly disease called plague. The authorities became so alarmed at the thought of an epidemic, that they parachuted a new supply of cats into the area as a first step in restoring the balance in an ecosystem they had upset by spraying DDT.

From: Ecology: Science of Survival
by Laurence Pringle
page 136

Let the class react to this. Ask:
What does "balance" mean as it is used here?
Do insects have a place in the environment?
How do they help keep it in balance?
What if there were no insects - what would happen?
(no more damage to plants and crops, no honey or silk, no malaria, no cross-pollination, no bee stings, no fleas for dogs, no food for birds, frogs, some fish, etc. - let the students think of as many consequences as they can)

The most meaningful experience in developing this concept would be to have some insects in the classroom that the children could actually observe. For example, the rearing of silkworm moths is a very effective learning experience. Also, the praying mantis is sure to stimulate interest. However, this unit is designed for substitute teachers so let's take another approach. Find out how much the students know about insects:

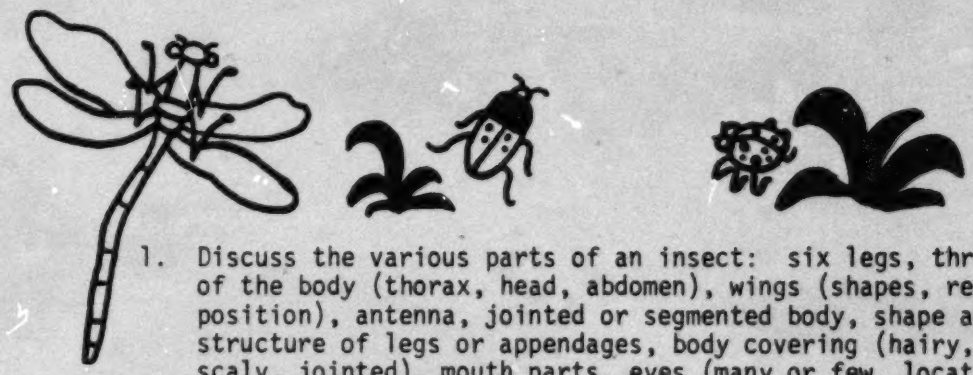
1. *What are the characteristics of an insect?*
   (Three body parts, six jointed legs, three or four life stages, etc.)
2. *Why isn't a spider an insect?*
   (It has two body parts, eight legs.)
3. *Why was the praying mantis brought to the U. S. and from where did it come?*
   (It was brought from the Orient to kill insects that injured shade trees.)

4. *What does arthropod mean?*
(Jointed legs)

5. *What is an entomologist?*
(A person who specializes in insect study.)
Many of our worst pests are insects that were imported to this country while their natural enemies were left behind. Entomologists are engaged in trying to discover and import these enemies, so that they may be able to hold our pests in check. In some cases these efforts have proved successful. The cottony-cushion scale, for example, was once a serious threat to the orange trees of California. A search for enemies of the scale resulted in the discovery in Australia of a species of lady-bug beetle that feeds on this scale. Introduction of this insect into California gave man control over the pest.

Call attention to the poster on display in the front of the room. After the preceding discussion there should be some rather provocative interpretations.

ACTIVITY: Through the selecting and creating of an insect, children appreciate principles of natural symmetry and design. This creative art lesson deals in the making of Tissue Paper Insects.

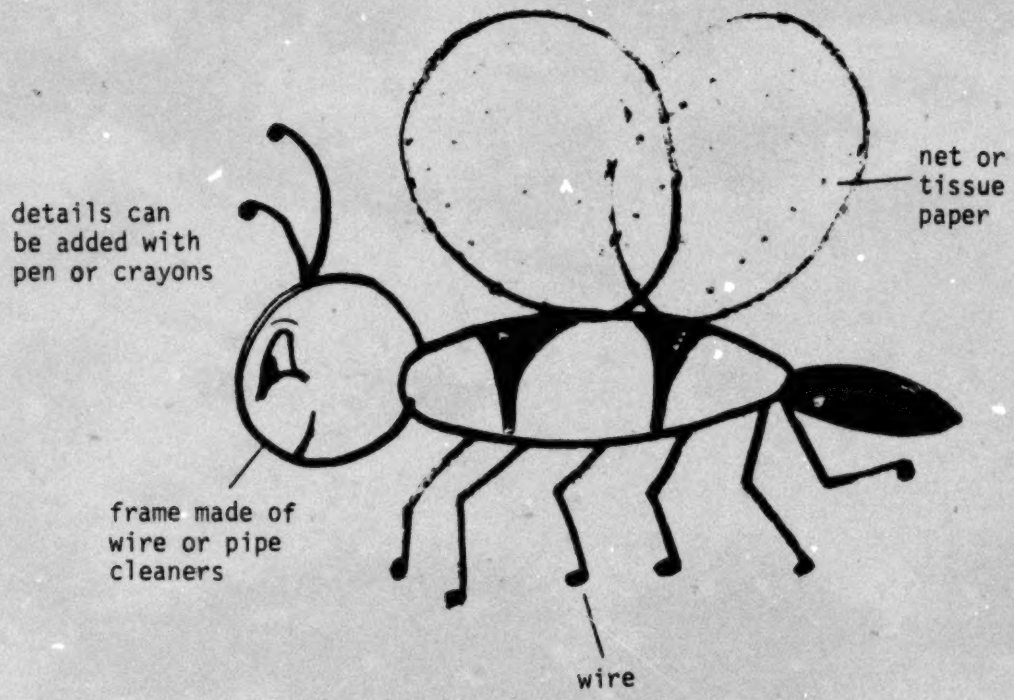


1. Discuss the various parts of an insect: six legs, three segments of the body (thorax, head, abdomen), wings (shapes, resting position), antenna, jointed or segmented body, shape and structure of legs or appendages, body covering (hairy, smooth, scaly, jointed), mouth parts, eyes (many or few, location), stance or resting position

2. Discuss the various types of insects which might be made into an art form. Study a particular insect. Concentrate on sections that can be part of an art form.

3. Draw the chosen sections of an insect on a sheet of paper. Exaggeration of size and omission of some details are permissable.

4. Shape with wire the basic form to be used. Cover the wire areas with tissue or net. Glue the tissue in place. Decorations may be added. (See example on following page.)



A fun way of displaying the finished products would be to hang the insects so they will move with the breeze.

SUGGESTED EXTRA ACTIVITIES:

The interest may carry over to the regular classroom teacher and the class may wish to collect and observe insects for further study. They should come from a variety of habitats. (fields, woods, near water, etc.)

Divide the class into groups to make posters showing how some insects are helpful.

Examples:
1. Pollinators (bees)
2. Soil conditioners (ants)
3. Predators (praying mantis)
4. Weed destroyers
5. Manufacturers (silkworms, bees)
6. Food (raised for bird food - eaten by people in some countries)

The interest shown may well lead to detail study of individual insects - bees, ants, etc.

Perhaps the children may wish to write simple verses of their own, picturing in rhythmic form an insect they have seen or experienced or imagined. It can be genuine verse without attention to a rhyming scheme.

Poetry...

"THE CATERPILLAR"

"LITTLE BUSY BEE"

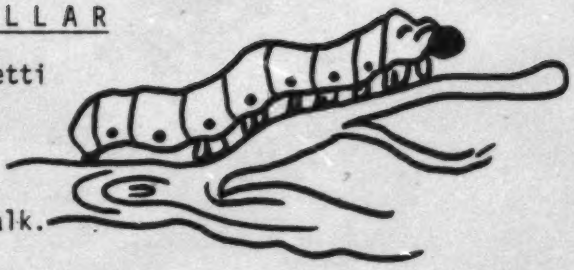
"JUNGLES OF GRASS"

"COCOON"

"THE CENTIPEDE"

THE CATERPILLAR

Christina G. Rossetti

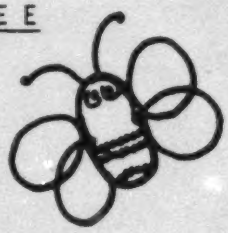


Brown and furry
Caterpillar in a hurry;
Take your walk
To the shady leaf, or stalk.

May no toad spy you,
May the little birds pass by you;
Spin and die,
To live again a butterfly.

LITTLE BUSY BEE

Isaac Watts



How doth the little busy bee
 Improve each shining hour,
And gather honey all the day
 From every opening flower!

How skillfully she builds her cell,
 How neat she spreads the wax,
And labors hard to store it well
 With the sweet food she makes!

JUNGLES OF GRASS

Aileen Fisher

Walking through the tangle
of grass and roots
and leaves that dangle
above the shoots,
ants and beetles
are certainly clever
not to get lost
forever and ever.

COCOON

David McCord

The little caterpillar creeps
Awhile before it sleeps.
It sleeps awhile before it flies,
And flies awhile before it dies,
And that's the end of three good tries.

THE CENTIPEDE

Anonymous

A centipede was happy quite,
Until a frog in fun
Said, "Pray which leg comes after which?"
This raised her mind to such a pitch
She lay distracted in the ditch
Considering how to run.

ENVIRONMENTAL LEARNING EXPERIENCE

To: _____

From: _____

Lesson presented: _____

_____

_____

Time span: _____

Suggested extra activities: _____

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Comments: _____

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(signed)

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LESSON 4

CONCEPT: A sense of beauty is essential to the well-being of man.

MATERIALS:
Poster 14 x 21"
title: Where have
all the flowers
gone?
Short story, Knowing the Flowers, by Robert Benchley
sunflower
rubber cement glue (paper cups for distribution)
tissue paper scraps or whole...many colors of yellow, orange, green, brown and black
wax paper
tape for hanging pictures

PROCEDURE: The lesson centers attention on the aesthetic value of nature, especially through wildflowers.

See how many wildflowers the class can name that grow in their community. (List them on the blackboard) *Does anyone remember seeing some on their way to school? Does anyone in the class have a wildflower in their own yard at home?*

What is the relationship of the number found here in Seattle and those found in other parts of the state? Some students may recall this from vacations throughout the state.

How would you like to live in an area where there were no green plants? Could this affect your own life?

Why should cities be planned to incorporate beauty? Has Burien done anything recently to beautify the streets? What about Seattle's Pioneer Square? This discussion could go on and on, and prove to be very informative - especially if it seems to be a fairly observant group of children.

Do colors do anything to your feelings, emotions or overall personality? Talk about the effect on humans if there were a lack of color.

Does the poster, "Where have all the flowers gone?", relate a special message to you? Share orally some of their feelings. Then read orally Knowing the Flowers, a story about a chap who considers himself an expert on wildflowers.

Follow-up discussion after reading the story:
What point do you think the author is trying to make?
What can happen when knowledge becomes an end in itself?
Which do you think is more important - art or science? Why?
Would you like to be an expert in something? How would you handle it if something like this happened to you, the expert?
Which man seemed the happier individual? Why? How were their attitudes different?

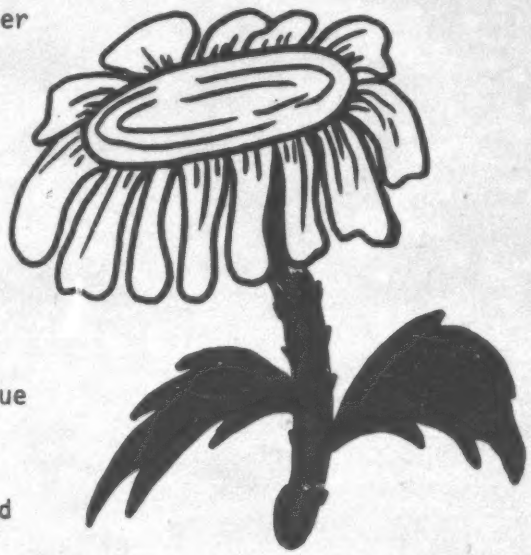
The amount of time you will want to spend on the above discussion will depend on the type and level of class you are working with.

ACTIVITY:

1. Bring in a sunflower to the class. If it is not in season, use an artificial one or a large picture. Be sure to have a nice, long stem and leaves on it. It could be sitting in a can of sand.

2. Talk about it and look at it with the class. Call attention to all its colors and irregularities and the way the leaves take different shapes according to the artist's point of view. Also notice leaves positions on stalk and varying sizes.

3. Give each child a piece of wax paper the size or larger of the sunflower's whole length. Also have an assortment of possible colors of tissue paper positioned around the room so that it is easy for them to reach.

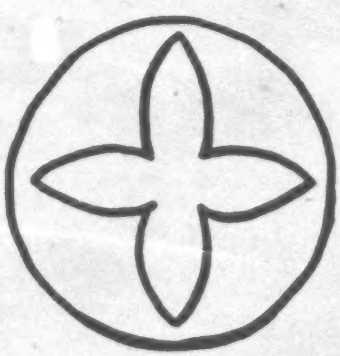


4. Have cans or paper cups of rubber cement glue available on tables.

5. The children will tear the tissue paper to make the sunflower. Save the scraps for later use. Please be sure to show the effect that overlayed tissue paper makes. Tell them to lay light paper over darker. Not vice versa.

6. Talk about shadow on the leaves and then be sure to have several colors of green so that they can tear out some shadowy parts. All parts are torn and glued as they go along.

Display these against windows by using scotch tape. They are very attractive with the light shining through.



Knowing the Flowers...

KNOWING THE FLOWERS

by Robert Benchley

A little learning may be a dangerous thing, but a lot of learning may turn out to be even worse. I have tried to know absolutely nothing about a great many things, and, if I do say so myself, have succeeded fairly well. And to my avoidance of the responsibilities which go with knowledge I lay my good digestion today. I am never upset when I find that I know nothing about some given subject, because I am never surprised.

The names of birds and flowers, for example, give me practically no worry whatever, for I never set out to learn them in the first place. I am familiar with several kinds of birds and flowers by sight, and could, if cornered, designate a carnation or a robin as such. But beyond that I just let the whole thing slide and never torture myself with trying to remember what the name of that bird with the yellow ear is or how many varieties of gentians there are. (By the way, what ever became of gentians? Are they used only for models in elementary school drawing classes?)

People who specialize in knowing the names of birds and flowers are always in a ferment, because they are always running up against some variety which stumps them. Show an ornithologist a bird that he can't name and he is miserable for a week. He goes home and looks up reference books, writes letters to the papers asking if someone can help him, and tosses and turns at night, hoping that his subconscious will solve the problem for him. He develops an interiority and, unless closely watched, may actually do away with himself out of sheer frustration. It isn't worth it.

I once had a heartbreaking experience with a flower-namer. He was one of those men who began when they were boys spotting the different types of wildflower, and, at a hundred yards, could detect a purple wolf's cup (or "Lehman's dropsy") and could tell you, simply by feeling a flower in the dark, which variety of "bishop's ulster" it was. There was practically no wildflower of North America that he didn't know to speak to, and he took a little more pride in his knowledge than was really justified. At least, so it seemed to me.

I found myself on a walking trip through Cornwall with this man one summer, for, when he wasn't spying on wildflowers, he was very good company. On account of the weather, we spent the first five days of our walking trip in the taproom of an inn at a place appropriately named Fowey (pronounced Pfui), and on the first sunny day set out with our knapsacks on our backs and a good song ringing clear. Looking back on it now, I don't see what ever got into me to be doing so much walking.

Along about noon we came to a large field which was completely covered with multicolored wildflowers. There must have been a thousand different varieties, or, at any rate, a hundred. I saw what was coming and winced. I was going to be a party to a botany exam. Little did I realize that I was also to be a party to a tragedy.

My companion went over to the edge of the field and examined a red flower by the roadside. His face took on a worried look. He didn't recognize the species! He looked at a blue flower next to it. He didn't recognize that, either! He gave a hurried survey of the five square feet surrounding him and blanched. He said nothing, but I could tell from his staring eyes and damp brow that there was not one variety of flower that he could name.

He ran into the field, stooping over and straightening up like a madman, turning round and round in circles and looking wildly about him, as a dog looks when ten people start whistling at him at once. Here was not only one flower that he had never heard of before, but a whole field full -- hundreds and hundreds of unknown blossoms, all different and all staring up at him waiting to be named.

A chameleon is supposed to go insane when placed on a plaid. This man was in danger of going raving crazy from pure chagrin.

I tried to get him to leave the field and continue our little march, but he hardly heard what I was saying. He would pick a flower, examine it, shake his head, mop his brow, pick another, wipe the perspiration from his eyes, and then throw them both to the ground. Once he found something that he thought was a poppy and his joy was pitiful to see. But the stamen or something was wrong, and he burst into tears.

There was nothing that I could do or say, so I just sat by the roadside with my back turned and let him fight it out with himself. He finally agreed to leave his Waterloo, but the trip was ruined for him. He didn't speak all that day, and that night, after we had gone to bed, I heard him throwing himself about the bed in an agony of despair. He has never mentioned wildflowers since.

I cite this little instance to show that being an expert in any one line is a tremendous responsibility. For, if an expert suddenly finds out that he isn't entirely expert, he just isn't anything at all. And that sort of thing gets a man down.

ENVIRONMENTAL LEARNING EXPERIENCE

To: _____

From: _____

Lesson presented: _____

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Time span: _____

Suggested extra activities: _____

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Comments: _____

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(signed)

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LESSON 5

CONCEPT: The sun is the basic source of energy.

MATERIALS:
Poster 14 x 21"
title: "You Make
My
Sun Shine"
Three poems:
1. The Sun Is First to Rise, by Elizabeth Coatsworth
2. How the Sun Rose, by Emily Dickinson
3. An Indian Summer Day on the Prairie, by Bachel Lindsay
8½ x 11" white drawing paper
tempera paints (yellow, red and black)
brushes
water pans
penmanship paper
pencils

PROCEDURE: The delightful poster - "You Make My Sun Shine," will prompt a fun and enlightening discussion.

The color yellow usually brings out cheerfulness in one's personality. So with a "warm" setting lead into the more factual development of the concept - the sun in the basic source of energy.

Do you know where light comes from?

All light comes from the sun. The only exception is the light that comes from the other stars, but this light is so dim as to be negligible as a source of illumination

Why did ancient man worship the sun?
What does the sun do for us? (list them on the blackboard)
What do we mean by energy?
What if one evening the sun set, and never came up again?

What are the 2 kinds of light?
We have two kinds of light - natural and artificial. Sunlight is an example of natural light. Whenever our side of the earth is turned toward the sun, it is daylight for us, no matter how cloudy the sky may be. On a cloudy day the light from the sun cannot reach us as well as when there is nothing to prevent the sun's rays from striking directly, but there is still light. The only exceptions are those rare occasions when the moon gets between the sun and the earth and causes an eclipse.

Without the sun there could be no falling rain to produce streams and hence no water power. And without the sun there could have been no plants and therefore no coal. So actually even our chief source of artificial light can be traced to the original source - the sun.

At one time, artificial light was furnished by nautral and manufactured gas, by kerosene lamps, by candles, by lamps using oil obtained from animals, and by wooden torches. Even these means of lighting would have been impossible without the sun.

The sun, like many other forms of nature, has always prompted authors to put their feelings in verse form. The three poems relating to the sun should be read orally and perhaps discussed.

ACTIVITY:

1. Wet 8½ x 11" paper with clean water. It is <u>not</u> necessary to soak the paper.

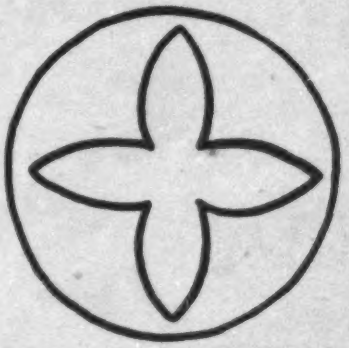
2. Drop yellow and red paint on while paper is still wet. They will run together and when dry you will be able to recognize objects.

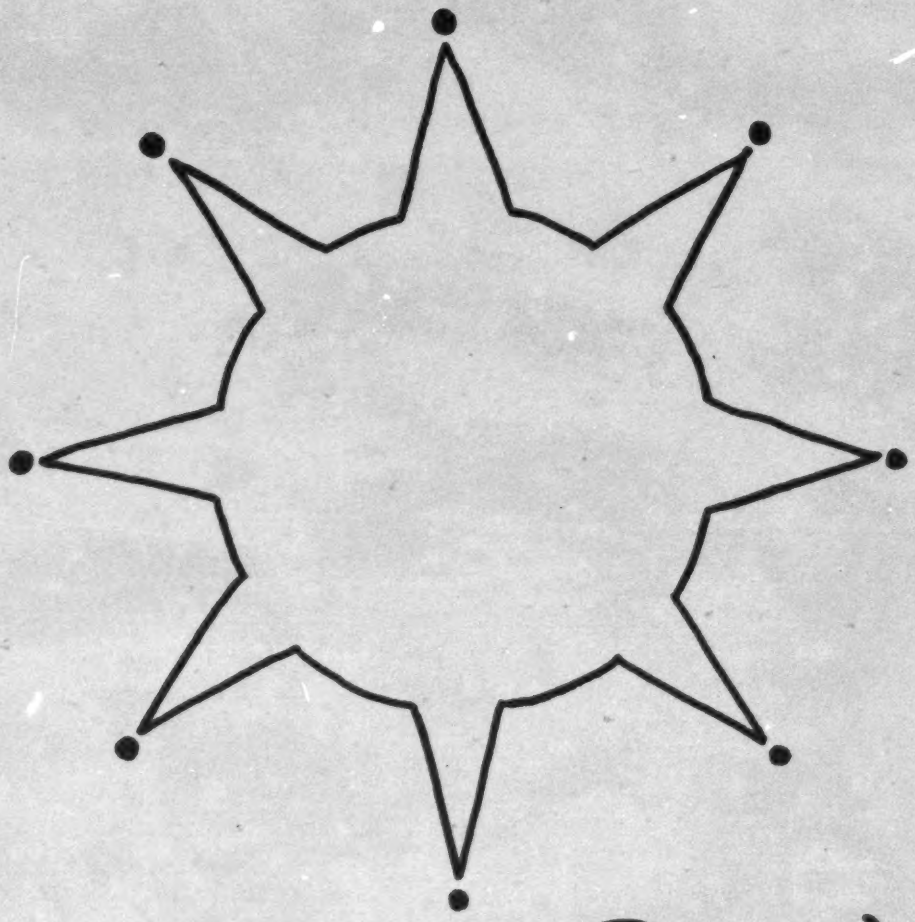
3. Outline them in black tempera paint. If possible take a short activity break at this time to allow for drying.

Encourage the students to look for animal and plant life in their pictures.

Have the students use as many of the outlined objects in a creative writing lesson. This portion of the lesson can be started even if picture is still slightly damp.

Examples are in kit.





Poetry...

"THE SUN IS FIRST TO RISE"

"HOW THE SUN ROSE"

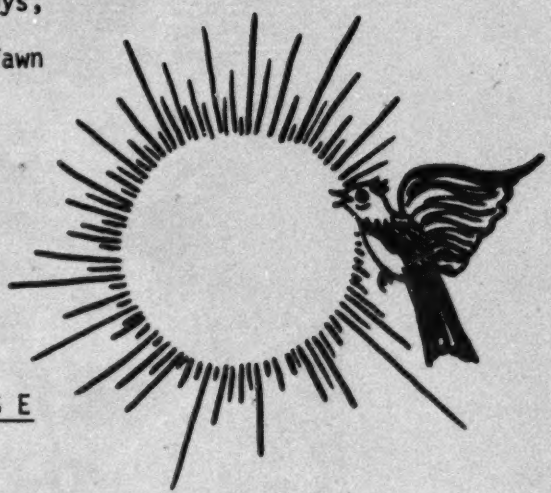
"AN INDIAN SUMMER DAY ON THE PRAIRIE"

THE SUN IS FIRST TO RISE

Elizabeth Coatsworth

Up in the morning early,
The sun is first to rise;
The little birds begin to sing,
The farmers rub their eyes.
The rabbits hop down roads of dew,
The newborn baby cries,
And the gray kitten runs and leaps,
Chasing white butterflies.

Away to bed with darkness
The sun is first to go;
Across the fields with heavy wings
There flaps a shiny crow;
The children put away their toys,
Their steps are dragging slow;
And in the woods the spotted fawn
Lies close beside the doe.



HOW THE SUN ROSE

Emily Dickinson

I'll tell you how the sun rose--
A ribbon at a time.
The steeples swam in amethyst,
The news like squirrels ran.

The hills untied their bonnets,
The bobolinks begun.
Then I said softly to myself,
"That must have been the sun!"

But how he set, I know not.
There seemed a purple stile
Which little yellow boys and girls
Were climbing all the while

Till, when they reached the other side,
A dominie in gray
Put gently up the evening bars,
And led the flock away.

AN INDIAN SUMMER DAY ON THE PRAIRIE

Vachel Lindsay

IN THE BEGINNING

The sun is a huntress young,
The sun is a red, red joy;
The sun is an Indian girl
Of the tribe of the Illinois.

MID-MORNING

The sun is a smoldering fire
That creeps through the high gray plain,
And leaves not a bush of cloud
To blossom with flowers of rain.

NOON

The sun is a wounded deer
That treads pale grass in the skies,
Shaking his golden horns,
Flashing his baleful eyes.

SUNSET

The sun is an eagle old;
There in the windless west
Atop of the spirit-cliffs,
He builds him a crimson nest.

ENVIRONMENTAL LEARNING EXPERIENCE

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From: _____

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Time span: _____

Suggested extra activities: _____

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Comments: _____

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